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THE GENUS *CYPTOCEPHALA* BERG, 1883 (HEMIPTERA: PENTATOMIDAE)

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Abstract.—*Cyptocephala alvarengai* and *C. pallida,* new species, are described. Diagnoses for other species are provided. *Thyanta elegantula* Jensen-Haarup, 1928, is placed in the synonymy of *Cyptocephala cogitabunda* Berg, 1883.

Berg (1883) proposed the genus *Cyptocephala* for a small, uncommon and previously unknown pentatomid, *C. cogitabunda.* The genus remained monotypic until Rolston and McDonald (1984) transferred four nominal species from *Thyanta* Stål to *Cyptocephala.* These species were described originally as *Pentatoma antiguensis* Westwood, 1837, *Thyanta bimini* Ruckes, 1952, *Thyanta elegans* Malloch, 1919, and *Thyanta* (*Parathyanta*) *elegantula* Jensen-Haarup, 1928. Two new species are now added to the genus and *C. elegantula* is placed in the synonymy of *C. cogitabunda.* A key is provided to aid in the recognition of the species.

Cyptocephala, Berg, 1883

Cyptocephala Berg, 1883:209–210 (reprinted 1884:25–26); Rolston and McDonald, 1984:74–77.
Crato Distant, 1893:457. (Synonymized by Rolston, 1976.)
Thyanta subgenus *Parathyanta* Jensen-Haarup, 1928:186. (Synonymized by Rolston and McDonald, 1984.)
Thyanta (in part): Rolston, 1972:282, 284–285; Rolston 1976:6.

Diagnosis. Juga projecting little if any beyond tylus, apex of head either shallowly emarginated or smoothly convex. Bucculae arcuately truncate posteriorly; first rostral segment lying entirely between them; rostral apex reaching to or slightly beyond base of abdomen. Ocelli lying entirely behind imaginary line drawn across posterior limit of reticulation of eyes. Interocular width more than one-half width of head across eyes. Anterolateral margin of pronotum angular dorsoventrally, at least posteriorly, sometimes narrowly reflexed posteriorly, without rim, entire; anterior margins of propleura not produced. Scutellar width at distal end of frena 0.30–0.45 basal width. Ostiolar juga on each side extending 0.7–0.80 distance from mesial margin of ostiole to lateral margin of metapleuron. Femora unarmed, tibiae sulcate. Costal angle of each corium lying above penultimate segment. Abdominal venter without basal tubercle or spine.

Parameres bilobed with fine denticles between lobes. Dilation of spermathecal duct not extending full length of enclosed sclerotized rod; enlargement usually present proximad of proximal flange. Spiracles present on 8th paratergites.

Type-species. The type species of *Cyptocephala* is *Cyptocephala cogitabunda* Berg,

1883, by monotypy; that of *Crato* is *Crato urbicus* Distant, 1893, by monotypy = *Cyptocephala antiguensis* (Westwood, 1837); and that of *Thyanta* subgenus *Parathyanta* Jensen-Haarup, 1928, is *Thyanta* (*Parathyanta*) *elegantula* Jensen-Haarup 1928 by original designation = *Cyptocephala cogitabunda* Berg.

Comments. Cyptocephala is near *Thyanta* Stål and *Tepa* Rolston and McDonald, but it differs especially in having bilobed, denticulate parameres.

KEY TO SPECIES

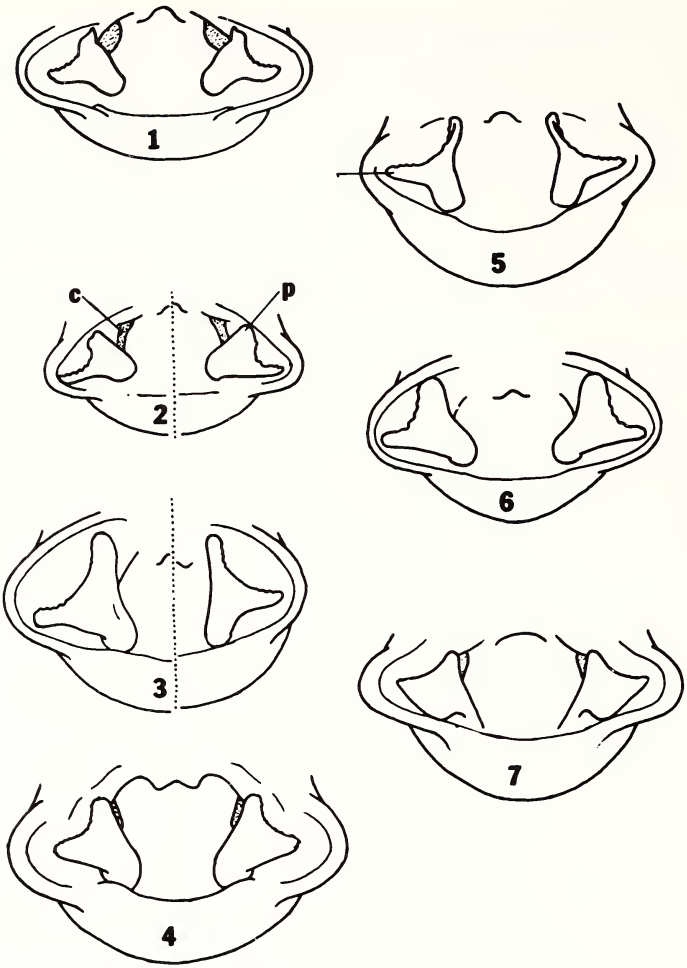
1. Wide, white, calloused band on each side ventrally, beginning beneath eye and continuing across pleura with interruptions at anterior and posterior pleural margins ..... *elegans* (Malloch)
– Venter lacking calloused band 2
2(1). Juga projecting slightly past tylus, producing shallow emargination in apex of head ..... *cogitabunda* Berg
– Apex of head smoothly arcuate 3
3(2). Anterior lobe of parameres acute apically (Fig. 1); maximum length of each 9th paratergite less than twice its maximum width (Fig. 15) ..... *alvarengai,* new species
– Anterior lobe of parameres narrowly to broadly rounded; maximum length of each 9th paratergite about 2.5 times its maximum width 4
4(3). Females 5
– Males 7
5(4). Basal plates tumescent, from lateral view disc protruding beyond mesial margin of plates at base ..... *antiguensis* (Westwood)
– Basal plates convex but not tumescent, disc not protruding beyond mesial margin of plates at base 6
6(5). Minimal distance between 9th paratergites 1.5–2.0 times length of 10th sternite (Fig. 16); basal plates somewhat umbonate in apical angle; last two segments of antennae without apical bands ..... *bimini* (Ruckes)
– Minimal distance between 9th paratergites 1.2–1.3 times length of 10th sternite (Fig. 17); basal plates lacking umbo; last three segments of antennae bicolored, pale green to cream basally, rufous to light brown distally ..... *pallida,* new species
7(4). Ventral margin of parameres foliate (Fig. 7) ..... *bimini* Ruckes
– Ventral margin of parameres not expanded 8
8(7). Width of scutellum at end of frena less than ⅔ of basal width; carina entad of parameres on each lateral wall of genital cup at least partially visible (Fig. 4) ..... *pallida,* new species
– Width of scutellum at end of frena ⅔ or more of basal width; denticle entad of parameres on each lateral wall of genital cup concealed by parameres ..... *antiguensis* (Westwood)

Cyptocephala elegans (Malloch)
Figs. 5, 12

Thyanta elegans Malloch, 1919:217, 218, figs. 71, 76, 77; Rolston, 1972:284, figs. 52–58.

Cyptocephala elegans: Rolston and McDonald, 1984:77, figs. 39, 41.

Diagnosis. Wide, calloused white band on each side ventrally, beginning beneath eye and continuing across pleura with interruptions at anterior and posterior pleural margins. Dorsum green with multihued, variable markings; head flavescent excepting



Figs. 1–7. Genital cup. 1. *C. alvarengai.* 2. *C. cogitabunda,* variation in parameres. 3. *C. antiguensis* from Dominican Republic (left) and Grenada (right). 4. *C. pallida.* 5. *C. elegans.* 6. *C. antiguensis* from Mexico. 7. *C. bimini.* Symbols: carina (c); paramere (p).

apex, tylus and vertex green; humeri usually connected by irregular, ivory callus bordered with rufous; broad lateral border on scutellum, often exocoria and narrow border along anterolateral margins of pronotum, all white to flavescent with rufous punctures and a few fuscous punctures.

Lateral margins of juga tapering sinuously to evenly rounded apex of head, nowhere parallel; anteocular concavity shallow. Anterolateral margins of pronotum nearly straight, weakly reflexed near humeri. Width of scutellum at end of frena about 0.4 basal width. Length excluding hemelytral membranes 6.0–7.0 mm.

Parameres concealing denticle on each lateral wall of genital cup, abruptly bent, appearing trilobed in genital cup (Figs. 5, 12).

Distribution. Florida (Hillsborough, Monroe, Sarasota counties) and Texas (Aransas, Brazoria, Cameron, Kleburg, and Nueces counties along Gulf of Mexico).

Type. Not seen.

Comments. This rare, colorful species varies greatly in dorsal markings, but the calloused, pleural bands are apparently constant.

Cyptocephala cogitabunda Berg
Figs. 2, 9

Cyptocephala cogitabunda Berg, 1883:210–211; Berg, 1884:26–27 (reprint of Berg, 1883); Berg, 1891:282–283; Rolston and McDonald, 1984:77, fig. 38.
Thyanta elegantula Jensen-Haarup, 1928:186, 188, 191. **New Synonymy.**
Cyptocephala elegantula: Rolston and McDonald, 1984:77.

Diagnosis. Extremely variable in color and markings, ranging in predominant color from dark brown to dark green. Scutellum usually with pale mesial band beginning most often caudad of basal disc and continuing to apex, this band often bordered subapicallly with elongated patch of dark castaneus to fuscous punctures. Pale, transhumeral band often present, limited posteriorly by narrow, irregular callus; latter sometimes bordered posteriorly by narrow band of rufous to fuscous punctures. Exocoria often pale, at least basally.

Juga projecting slightly beyond tylus, causing shallow emargination in apex of head, their lateral margins briefly parallel or subparallel before rather shallow anterocular concavity. Anterolateral margins of pronotum concave, somewhat reflexed at humeri. Humeri subangular, projecting laterad of corresponding corium by 0.4–0.8 width of eye. Scutellar width at end of frena 0.38–0.44 basal width. Pleura uncalloused. Size extremely variable, 4.8–7.7 mm long excluding hemelytral membranes.

Carina on each side of genital cup mostly visible entad of parameres (Fig. 2). Lateral lobe of parameres narrow; anterior lobe wider, usually moderately rounded apically, sometimes irregular from denticulation (Figs. 2, 9).

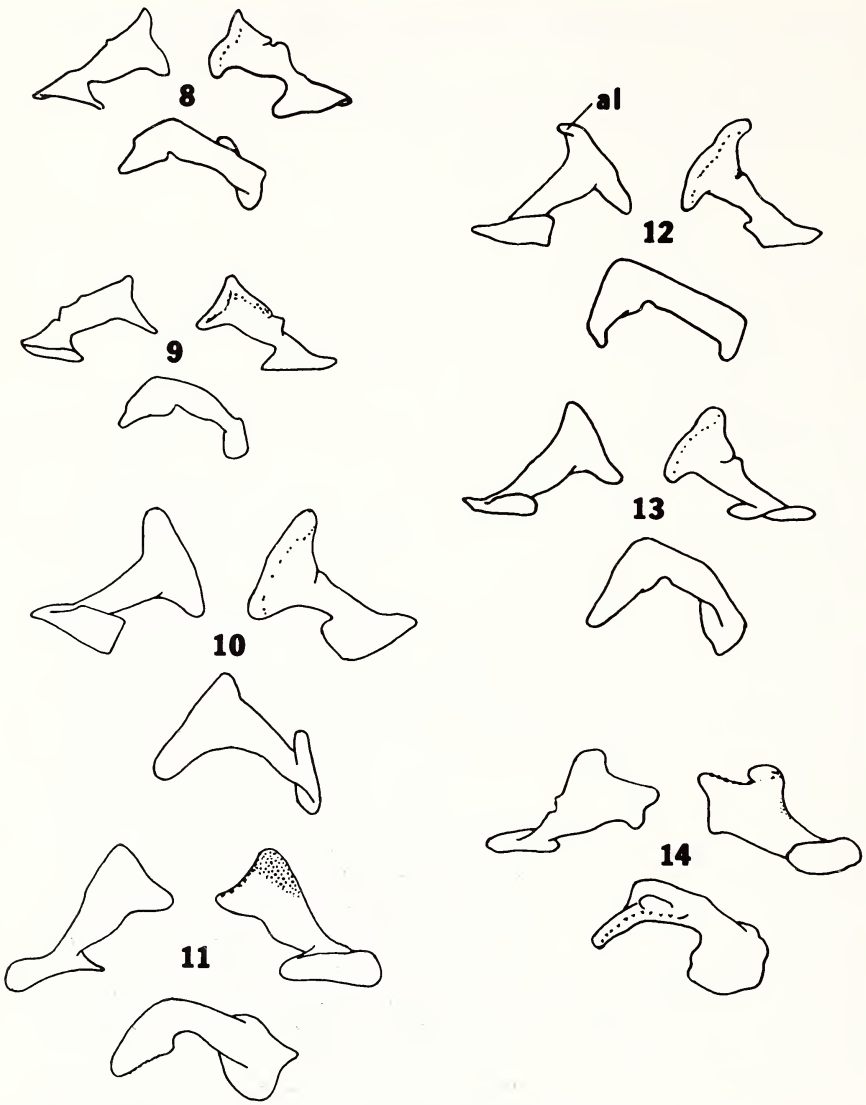
Distribution. Argentina (Buenos Aires, Catamarca, Córdoba, Mendoza, San Luis, Tucumán); Bolivia (La Paz); Uruguay (Colonia). The northern range is considerably greater if a specimen purportedly from Lima, Peru, is correctly labeled.

Types. Dr. Jocélia Grazia compared a female specimen sent to her with the holotype of *C. cogitabunda,* a female, and judged the two specimens to be conspecific. The holotype *Thyanta elegantula,* a male, was examined.

Comments. C. cogitabunda is the only species in the genus in which the juga are longer than the tylus, thus creating a shallow emargination in the apex of the head. It is also the only one with distinctly concave anterolateral pronotal margins; in the other species these margins are weakly concave or straight.

Cyptocephala alvarengai, new species
Figs. 1, 8, 15, 18–20

Description. Light tan or pale green, usually with variable, vague patterns of fuscous and/or rufous punctures; some light green individuals conspicuously marked with much of head, a broad band connecting humeri, and apical part of scutellum rufous



Figs. 8–14. Right paramere, ectal view (upper left), ental view (upper right), mesial view (lower). 8. *C. alvarengai.* 9. *C. cogitabunda.* 10. *C. antiguensis* from Dominican Republic. 11. *C. pallida.* 12. *C. elegans.* 13. *C. antiguensis* from Mexico. 14. *C. bimini.* Symbol: anterior lobe (al).

or rufously punctate; densely punctate spot on apex of scutellum fuscous or castaneous, occasionally reduced to a few punctures. Length excluding hemelytral membrane 5.2–8.3 mm.

Lateral margins of juga parallel or subparallel between anteocular concavity and smoothly arcuate apex of head. Antennae dark stramineous or light green, apical ½

or less of segment 3 and all of segments 4 and 5 brown, castaneous or rufous; length of segments 0.3–0.4, 0.6–0.9, 0.75–1.0, 0.8–1.0, 0.85–1.0 mm. Rostral segments 2–4 about 1.1–1.5, 0.6–0.8, 0.6–0.8 mm in length; last segment mostly black, reaching from posterior margin of metacoxae to posterior margin of sternite 3 (2nd visible). Width of head across eyes 1.5–2.0 mm, mesial length 1.4–1.8 mm; interocular width 0.95–1.20 mm; distance across ocelli 0.85–1.05 mm.

Anterolateral margins of pronotum weakly concave. Interstices between punctures often calloused between humeri, forming narrow, irregular band. Width of pronotum at humeri 3.3–4.7 mm, mesial length 1.3–1.9 mm.

Mesial stripe with few or no punctures often present on scutellum distally, ending at small, marginal cluster of fuscous or castaneous punctures. Basal width of scutellum 2.0–3.2 mm, length 2.1–3.1 mm; width at distal end of frena 0.36–0.42 of basal width. Coria rather uniformly punctate; membranes hyaline, or with mesial veins brown, or with prominent mesial vitta. Connexiva little or not at all exposed, immaculate or sordid to fuscous, usually with marginal, semicircular, pale macule.

Ventral punctation usually castaneous to fuscous with black dot at base of mesial trichobothrium of each pair. Lateral angles of sternites usually minutely marked with black.

Greatest width of each 9th paratergite nearly ½ its greatest length (Fig. 15). Basal plates convex but not tumescent, without umbo.

Anterior lobe of parameres terminating in acute cone, occasionally spinose; lateral lobe subacute or narrowly rounded apically (Figs. 1, 8). Aedeagus as in Figures 19, 20.

Distribution. Northeastern Brazil, states of Bahia, Ceara, Minas Gerais and Pernambuco.

Holotype. ♂, labeled "Brazil: Pernambuco State, Petrolina, V-1969. M. Alvarenga." Deposited in Museu Nacional, Rio de Janeiro.

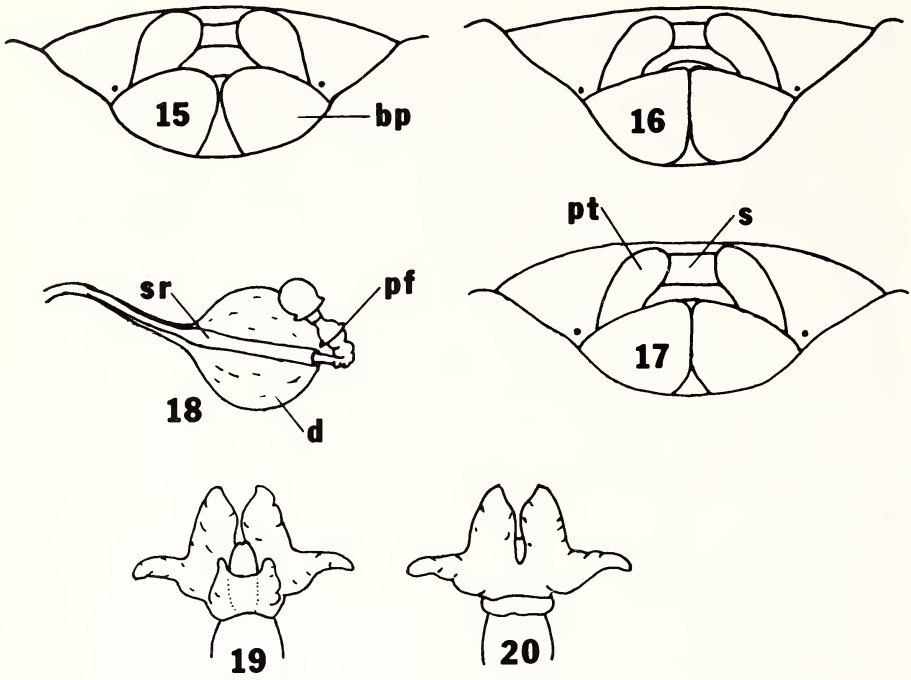
Paratypes. Labeled as holotype (39♂♂, 41♀♀); "Brazil: Ceara State, Crato, 850 m, Serra do Araripe. V-1969, M. Alvarenga" (3♂♂,1♀); "Brazil, Bahia: Encruzilhada, 960 m, Nov. 1972, N. Alvarenga" (1♂, 1♀); "Independencia, Brazil, Mann" (2♂♂); "Cordisburgo, Minaes Gerais, BRAZIL, 7–8 Nov. 19-Cornell University Expedit, Cornell U. Lot 569 Sub 84" (1♀).

Comments. The range of this species is not known at present to overlap that of any other spsecies of the genus. Of the other two congeners in South America, the known range of *cogitabunda* is considerably to the south and west, and the range of *antiguensis* apparently does not extend southward into that of *alvarengai.*

Etymology. This species is named for Moacir Alvarenga, one of the few recent and major collectors of South American insects.

Cyptocephala antiguensis (Westwood)
Figs. 3, 6, 10, 13

Pentatoma antiguensis Westwood, 1837:36
Pentatoma taeniola Dallas, 1851:250–251. (Synonymized by Distant, 1900.)
Thyanta taeniola: Stål, 1862:58; Distant, 1880:66, pl. 7, fig. 4.
Crato urbicus Distant, 1893:457, pl. 39, fig. 22. (Synonymized by Rolston, 1976.)
Thyanta antiguensis: Distant, 1900:812; Rolston, 1972:281–282, figs. 43–51; Rolston, 1976:4, 6.



Figs. 15–20. Genital plates. 15. *C. alvarengai.* 16. *C. bimini.* 17. *C. pallida.* 18. Spermatheca, *C. alvarengai.* 19. Distal part of aedeagus, *C. alvarengai,* dorsal view. 20. Same, ventral view. Symbols: basal plates (bp), dilation of spermathecal duct (d), paratergite 9 (pt), sclerotized rod (sr), sternite 10 (s), proximal flange (pf).

Thyanta picturata Ruckes, 1957:42–44. (Synonymized by Rolston, 1972.)
Cyptocephala antiguensis: Rolston and McDonald, 1984:77, figs. 19, 36.

Diagnosis. Variable in color, ranging from uniform light tan to rich green with ivory, rufous and black markings, especially as multihued transhumeral band and macule on scutellar apex.

Lateral margins of juga parallel or subparallel between anteocular concavity and more or less evenly rounded apex of head; juga not surpassing tylus. Anterolateral margins of pronotum straight to weakly concave, not reflexed. Scutellar width at end of frena 0.38–0.46 of basal width. Pleura uncalloused. Length excluding hemelytral membrane 5.5–7.8 mm.

Basal plates tumescent, their mesial margins not visible at base from lateral view. Parameres concealing denticle on each lateral wall of genital cup: anterior lobe of each varying in width, equal to or much wider than width of lateral lobe (Figs. 3, 6, 10, 13).

Distribution. Ranging from southern California, Arizona, Texas and Florida through Middle America and the West Indies, across northern South America and as far south as northern Peru in the Andean region.

Comments. The tumescent basal plates of females are distinctive and unique within the genus; and only in this species and *elegans* do the parameres completely conceal the denticle or carina on each lateral wall of the genital cup. *Cyptocephala antiguensis* lacks the calloused pleural bands that are characteristic of *elegans.*

In the western range of this species, at least as far south as western Panama, the lobes of the parameres are quite unequal in width (Fig. 6). In the eastern range these lobes are subequal in width from Puerto Rico southward throughout the Lesser Antilles and South America (Fig. 3, right). However, the typical western form also occurs in Florida, Cuba, and Jamaica, and intermediates between the western and eastern forms occur in Florida, Cuba and Hispaniola (Fig. 3, left). Whether or not there is a comparable zone of intergration in eastern Panama and/or the contiguous part of Colombia is unknown, but most of the few males seen from western Panama do show a narrowing of the anterior lobe.

Cyptocephala bimini (Ruckes)
Figs. 7, 14, 16

Thyanta bimini Ruckes, 1952:65–67.
Cyptocephala bimini: Rolston and McDonald, 1984:77, figs. 21, 22, 37, 40.

Diagnosis: Antennal segments usually almost unicolorous, light green or tan; occasionally apex of segment 3 and last two segments dark green, rarely segments 4 and 5 with broad, subapical, light rufous band. Pronotum lacking fascia between humeri.

Lateral margins of juga tapering slightly between anteocular concavity and smoothly arcuate apex of head. Pronotum not distinctly depressed submarginally between humeri and cicatrices; anterolateral margins nearly straight, narrowly and weakly reflexed from humeri to cicatrices. Scutellar width at end of frena 0.30–0.38 of basal width. Pleura uncalloused. Length excluding hemelytral membranes 6.5–8.8 mm.

Minimal distance between 9th paratergites 1.5–2.0 times length of 10th sternite (Fig. 16). Disk of basal plates somewhat umbonate in mesial angle. Carina on each lateral wall of genital cup partially exposed entad of parameres. Ventral margin of parameres foliate (Figs. 7, 14).

Distribution. Bahama Islands (Cat Isl., Long Isl., Grand Bahama, Mayaguana Isl., New Providence Isl., Rum Cay, South Bimini Isl.), Cuba, Dominican Republic, Florida (Dade Co., Monroe Co.), Jamaica, and Puerto Rico.

Type. The holotype was examined.

Comments. Of congeneric, sympatric species, *C. bimini* most closely resembles *pallida.* Both sexes of these species are separable by the genitalia, and they also differ, although less decisively, in the color of the antennae, form of the head before the eyes, and contour of the anterolateral submargin of the pronotum.

Cyptocephala pallida, new species
Figs. 4, 11, 17

Description. Pale green to cream with darker punctures. Length excluding hemelytral membranes 7.2–8.5 mm.

Lateral margins of juga parallel between anteocular concavity and smoothly arcuate

apex of head. Apex of antennal segment 3, distal ½ or more of 4, distal ¾ or more of 5, and sometimes tarsi faintly rufous or light brown; length of segments 0.4–0.45, 0.95–1.1, 0.8–1.05, 0.9–1.1, 0.9–1.05 mm. Rostral segments 2–4 about 1.1–1.3, 0.6–0.8, 0.7–0.8 mm long; apex projecting slightly past metacoxae. Width of head across eyes 1.8–2.1 mm, mesial length 1.5–1.9 mm; interocular width 1.1–1.3 mm; distance across ocelli 0.7–8.5 mm.

Anterolateral margins of pronotum nearly straight, slightly reflexed from humeri as far cephalad as cicatrices. Shallow but distinct submarginal depression located between each humerus and corresponding cicatrice; disk lacking fascia between humeri; punctation behind imaginary transhumeral line usually slightly stronger and sometimes darker than punctation before line. Pronotal width at humeri 4.1–4.7 mm, mesial length 1.5–1.8 mm.

Vague mesial stripe due to less dense punctation usually present on scutellum. Basal width of scutellum 2.6–3.3 mm, mesial length 2.7–3.5 mm; width at distal end of frena 0.32–0.36 of basal width. Small, scattered, subcalloused macules usually numerous on coria; hemelytral membranes hyaline, occasionally with a few inconspicuous, small, fumose spots along veins. Black dot on posterolateral corners of connexival segments not extending onto laterotergites.

Pleura rather uniformly punctate excepting nearly impunctate evaporative areas. Posterolateral angles of each sternite with small, black spot. Punctation on sternites moderately dense.

Minimal distance between 9th paratergites 1.2–1.3 times length of 10th sternite (Fig. 17). Basal plates convex but not tumescent, without umbo.

Anterior lobe of parameres wider than lateral lobe, broadly rounded, leaving carina on each lateral wall of genital cup at least partially visible (Fig. 4); ental face of anterior lobe with spiculate field (Fig. 11).

Distribution. Virgin Gorda Island (British Virgin Islands) and Hispaniola.

Holotype. ♂, labeled "Virgin Gorda BVI, Prickly Pear Id, Vixen Pt 14.IV.56, J. F. G. Clarke"; deposited in the National Museum of Natural History, Washington, D.C.

Paratypes. Labeled as holotype (3♀♀, NMNH); labeled as holotype except date "6-IV-1958" (♂); "Pt au Pr, Hayti, feb." (♂, UAT); "Dom. Rep., S. R. 9 km E Stgo, Rodriguez, May 28, 1978, CW & LB O'Brien and Marshall" (♂).

Comments. This species resembles *C. bimini* in size and color, and the two species are at least partially sympatric. They are separable by the genitalia of both sexes and also differ in antennal color, form of the head before the eyes, and contour of anterolateral submargin of the pronotum.

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